

WHAT IS CLAIMED IS:

1. An electro-optical device comprising above a substrate:
 - data lines extending in a first direction;
 - scanning lines extending in a second direction in such a manner that the scanning lines and data lines intersect each other;
 - pixel electrodes and thin-film transistors each placed in regions corresponding to intersections of the scanning lines and data lines;
 - storage capacitors each disposed below the data lines and each electrically connected to the corresponding thin-film transistors and pixel electrodes;
 - a capacitor line disposed above the data lines;
 - first junction electrodes, formed using the same film as that used to form the data lines, each electrically connecting the corresponding pixel potential capacitor electrodes of the storage capacitors and pixel electrodes; and
 - second junction electrodes, formed using the same film as that used to form the data lines, each electrically connecting the corresponding constant potential capacitor electrodes and the capacitor line,
 - the data lines, first junction electrodes, and second junction electrodes each including a nitride film.
2. The electro-optical device according to Claim 1, the data lines, first junction electrodes, and second junction electrodes each including the nitride film on a conductive layer.
3. The electro-optical device according to Claim 2, the data lines, first junction electrodes, and second junction electrodes having laminated layer structure including an aluminum film, titanium nitride film, and silicon nitride film.
4. The electro-optical device according to Claim 1, further comprising:
 - third junction electrodes formed using the same film as that used to form the capacitor line, the first junction electrodes each being electrically connected to the corresponding pixel electrodes with the corresponding third junction electrodes.
5. The electro-optical device according to Claim 4, the capacitor line and third junction electrodes each including a conductive layer and a nitride film disposed thereon.
6. The electro-optical device according to Claim 5, the capacitor line and third junction electrodes have laminated layer structure including an aluminum film, titanium nitride film, and silicon nitride film.

7. The electro-optical device according to Claim 1, further comprising:
fourth junction electrodes formed on an insulating layer on which
the thin-film transistors are formed, the pixel potential capacitor electrodes
each being electrically connected to the corresponding first junction electrodes with the
corresponding fourth junction electrodes.
8. The electro-optical device according to Claim 7, the fourth junction electrodes
being formed using the same film for forming gate electrodes of the thin-film transistors.
9. The electro-optical device according to Claim 1, the scanning lines being
placed below the thin-film transistors and each being electrically connected to the
corresponding gate electrodes with contact holes, the gate electrodes being each disposed on
corresponding semiconductor layers each included in the corresponding thin-film transistors.
10. The electro-optical device according to Claim 1, the storage capacitors each
including corresponding dielectric layers each disposed between the corresponding pixel
potential capacitor electrodes and constant potential capacitor electrodes, the dielectric layers
including a plurality of sub-layers containing different materials, and one of the sub-layers
containing a material having a dielectric constant larger than those of the materials of the
other layers.
11. The electro-optical device according to Claim 10, the dielectric layers each
including corresponding silicon dioxide sub-layers and silicon nitride sub-layers.
12. The electro-optical device according to Claim 1, the capacitor line being made
of a light-shielding film and extending along the corresponding data lines and have a width
larger than that of the data lines.
13. The electro-optical device according to Claim 1, further comprising:
a first insulating layer disposed under the pixel electrodes as the base and a
second insulating layer disposed under the capacitor line as the base, at least the surface of the
first insulating layer being planarized.
14. An electronic apparatus including an electro-optical device, the electro-optical
device comprising, above a substrate:
data lines extending in a first direction;
scanning lines extending in a second direction in such a manner that the
scanning lines and data lines intersect each other;
pixel electrodes and thin-film transistors each placed in corresponding regions
corresponding to intersections of the scanning lines and data lines;
the storage capacitors disposed below the data lines and each electrically

connected to the corresponding thin-film transistors and pixel electrodes;

capacitor line disposed above the data lines;

first junction electrodes, formed using the same film as that used to form the data lines, each electrically connecting the corresponding pixel potential capacitor electrodes and pixel electrodes;

and second junction electrodes, formed using the same film as that used to form the data lines, each electrically connecting the corresponding constant potential capacitor electrodes and the capacitor line,

the data lines, first junction electrodes, and second junction electrodes each including a nitride film.

15. A method to manufacture an electro-optical device, comprising forming above a substrate:

thin-film transistors;

a first interlayer insulating layer on gate electrodes of the thin-film transistors;

storage capacitors each by forming on the first interlayer insulating layer, the storage capacitors being each equipped with a pixel potential capacitor electrode, dielectric layer, and constant potential capacitor electrode disposed in order from the bottom;

a second interlayer insulating layer on the storage capacitors;

data lines, first junction electrodes, and second junction electrodes on the second interlayer insulating layer using a conductive material containing a nitride film, the data lines being each electrically connected to the corresponding semiconductor layers of the thin-film transistors, the first junction electrodes being each electrically connected to the corresponding pixel potential capacitor electrodes, and the second junction electrodes being each electrically connected to the corresponding constant potential capacitor electrodes;

a third interlayer insulating layer on the data lines, first junction electrodes, and second junction electrodes;

third junction electrodes and a capacitor line on the third interlayer insulating layer, the third junction electrodes being each electrically connected to the corresponding first junction electrodes, and the capacitor line being electrically connected to the corresponding second junction electrodes;

a fourth interlayer insulating layer on the third junction electrodes and capacitor line; and

pixel electrodes, each electrically connected to the corresponding third junction electrodes, on the fourth interlayer insulating layer.

16. The method according to Claim 15, the forming the storage capacitors including forming a first precursor film to form the pixel potential capacitor electrodes; forming a second precursor film to form the dielectric layers on the first precursor film;

forming a third precursor film to form the constant potential capacitor electrodes on the second precursor film; and

etching the first, second, and third precursor films in one step to form the pixel potential capacitor electrodes, dielectric layers, and constant potential capacitor electrodes.

17. The method according to Claim 15, the forming the storage capacitors including forming a first precursor film to form the pixel potential capacitor electrodes;

etching the first precursor film to form the pixel potential capacitor electrodes;

forming a second precursor film to form the dielectric layers on the first precursor film;

forming a third precursor film to form the constant potential capacitor electrodes on the second precursor film; and

etching the third precursor film to form the dielectric layers and constant potential capacitor electrodes, the constant potential capacitor electrodes having an area larger than that of the dielectric layers and pixel potential capacitor electrodes.